40 MARSHALL STAR

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Through the Microgravity Research Program at Marshall

Biomedical research aids in war against cancer

NASA photo

Working to defeat breast cancer, Dr. Bob Richmond, a researcher at the Marshall Center, is trying to gain better understanding of this deadly disease which affects nearly 180,000 women each year in the United States.

by Bob Thompson

In our lifetimes — half of all men and one-third of all women will develop cancer, according to the American Cancer Society. To aid medical researchers combat these odds, NASA sponsors both space and ground-based research to better understand — and win — the fight against cancer.

Sponsored by NASA's Microgravity Research Program at the Marshall Center, biomedical and biotechnology research conducted aboard orbiting spacecraft and in ground-based laboratories is leading to a better understanding of cancer and new innovative treatments.

Advances in space technology have led the way for new treatment techniques for removal of children's brain tumors, a new skin cancer drug and improved understanding of women's breast cancer.

October is Breast Cancer Awareness month. This year, nearly 180,000 women in the United States will be diagnosed with breast cancer. One-fourth of these women will die, according to the American Cancer Society.

As part of the continued effort to understand and defeat cancer, several cancer research experiments are scheduled

*See **Research** on page 4*

Hurricane study ends with venture into Georges

The final flight of a NASA aircraft in a NASA and National Oceanic and Atmospheric Administration (NOAA) hurricane study took place Sept. 27 as Hurricane Georges prepared to make landfall on the Mississippi Gulf Coast.

Results from the hurricane study, headed up by Robbie Hood from the Global Hydrology and Climate Center at the Marshall Center, may increase hurricane warning time and decrease the size of evacuation areas.

"We are tired but happy," said Robbie Hood, project mission scientist from Marshall's Global Hydrology and Climate Center. "This project would not have been a success without Ramesh Kakar (program manager from NASA Headquarters, Washington, D.C.), and the professional assistance from the Air Force at Patrick and Warner Robins Air Force Base, Ga.," she added.

An ER-2 aircraft, a converted spy plane, left Warner Robins Sept. 27 for a 6-hour mission to study the rainbands of Hurricane Georges north of the eye. The ER-2 also conducted an underflight of the Tropical Rainfall Measurement Mission satellite over the Gulf of Mexico.

Launched in November 1997, the satellite is a joint NASA and Japanese Space Agency mission to measure rainfall 35 degrees above and below the equator.

The flight was the concluding airborne mission of the third Convection and Moisture

*See **CAMEX** on page 3*

Administrator Goldin comments on NASA's 40th anniversary

EDITOR'S NOTE: NASA Administrator Dan Goldin made the following comments on NASA's 40th anniversary:

Forty years ago, in 1958, the National Aeronautics and Space Administration was created with the boldest and most noble of missions: to pioneer the future. We were told to explore new frontiers and enhance life here on Earth. We were asked to instruct; we were expected to inspire. Forty years later, thanks to an American public with an unquenchable thirst for knowledge and a relentless sense of adventure, NASA has delivered.

Think about this: Forty years ago, jet passenger service was a novelty. Global communications meant a telephone line laid across the bottom of the Atlantic Ocean. When NASA was first getting started, the only way to track hurricanes was to fly planes directly over and into the storms. Our universe — even the cosmic neighborhood just above our atmosphere — was a mystery. In 1958, sending humans to the

*See **Goldin** on page 2*

"Safety starts with you"

Safety slogan submitted by
Karen Stephens, EB44

Senator Sessions commemorates NASA during speech before Senate

Alabama Sen. Jeff Sessions delivered a speech recently to the Senate commemorating the 40th anniversary of NASA. Excerpts from Sessions' speech follow:

...Mr. President, next month, from launch pad 39B at Cape Canaveral, the Space Shuttle's main engines will fire up, the solid rocket motors will ignite, and the crew of seven will be sent off into orbit around our home planet.

One of those seven will be the distinguished senator from Ohio. More than 36 years after his first flight, John Glenn will again orbit the earth in a U.S. spacecraft.

I have here a picture of Senator Glenn taken 36 years ago with Dr. Wernher von Braun in Huntsville, Ala., my home State. They are shown here discussing a proposed lunar landing craft. What an imagination, what a vision, what an exploring capacity they had. Shortly after that first orbital flight, they were already planning a trip to the moon—a vision that many thought could never be achieved and was achieved so successfully.

The agency's achievements and discoveries during that 40-year period have changed our world in many ways. Those who are familiar with the space program talk frequently of the many 'spinoffs' from the program.

As we look to the future, NASA cannot, and would not, rest on its laurels. Within the first few months after its 40th Anniversary, NASA will launch the STS-95 science mission, with Senator Glenn on board, will launch the first U.S. element of the International Space Station, and will launch its next great observatory, the Advanced X-Ray Astrophysics Facility.

Following close on the heels of those missions will be the first flights of the X-34 technology demonstrator and the X-33 reusable launch vehicle prototype, as well as the launch of the U.S. Laboratory Module for the Space Station.

I am proud of the role that my home state has played and continues to play in the space program. Even before NASA was formed, Dr. Wernher von Braun and his team of rocket scientists with the Army Ballistic Missile Agency in Huntsville were developing new rocket systems. A modified Jupiter-C rocket, developed by von Braun's team, answered Sputnik by placing the Explorer I Satellite into orbit on January 31, 1958.

Marshall Space Flight Center is still NASA's center of excellence for space propulsion, as well as NASA's lead center for Space Transportation Systems Development and for Microgravity Research. Companies and universities in Alabama also continue to play important roles in the space program.

Mr. President, I congratulate NASA on its 40th anniversary. I look forward to continuing to work hard to support this program in the future.

... I think it is time that we recognize our character as a nation, that we not cut NASA, that we recognize that it symbolizes who we are as a people.

Mr. President, I want to again say how much I have been honored to serve with astronaut Glenn, Colonel Glenn, and Senator Glenn. He has been a high representative of this Senate. We cheer him on again as he goes forward to his next flight 36 years after the first.

NASA photo by Danny Reeves

Center Director Stephenson gives Trevino award at Hispanic Heritage luncheon

Marshall Center Director Art Stephenson, right, presents a Certificate of Appreciation to Marshall employee Luis Trevino during the Hispanic Heritage luncheon Sept. 30 at the Redstone Officers Club. Trevino was recognized for his participation on the Marshall Center Hispanic Heritage Month committee.

Goldin

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Moon was pure science fiction.

But we dared to dream. We imagined what could be possible. And then along with our partners in industry and academia, we went to work.

In 1998, hundreds of millions of people ride American jets each year and new designs for flight go higher, faster and farther than ever before. Global space communications have helped create a global community. Weather satellites can detect the early evolution of an El Nino condition months in advance. There are still many mysteries to be solved, but Voyager, Galileo, the Hubble Space Telescope and other planetary and astronomy missions have circled neighboring planets, given us our first direct evidence that black holes exist, and begun to peer back at the very beginning of our universe. A space program that is 40 years old has sent astronauts to the Moon, robots to Mars, spacecraft to the furthest reaches of our solar system, and soon will help build the International Space Station. And for every step we take out there, we have contributed to a better quality of life right here. That is true whether it be the "spin-off" technology that helps us detect breast cancer earlier, or the child who looks up and knows that no longer is the sky the limit; it is the stars and beyond.

NASA has had a great 40 years, but what the American people can be most proud of is this: when it comes to pioneering the future, we are just getting started. What will always define this aeronautics and space program — and this country — is our firm belief that there will forever be something to invent, somewhere to discover, someplace to visit.

Rest assured, NASA will do its best in the next 40 years to find out just what and where that will be.

Center salutes remaining charter members and their dedication

On Oct. 1, the National Aeronautics and Space Administration celebrated its 40th birthday. It was a significant event for all NASA employees and one of extra significance to the charter members of the Marshall Center — the Center's original employees.

In all, 4,670 employees helped form the nucleus of the new Marshall Center when it was created on July 1, 1960. Today, 37 of those original employees still work at the Center. They were among those who transferred to the new NASA field Center in Huntsville from the Development Operations Division of the U.S. Army Ballistic Missile Agency. Some were making contributions to America's early missile and space program before NASA was created.

The Marshall Center salutes all its charter members and their dedication to the space program. Remaining charter members include: Robert Austin, XX01; Richard Beckham, EB42; Harold Bencaz, SA39; James Blanche, EB13; Salvadore Caruso, EH42; Walton Clarke, EO01; Gertrude Conard, CM21; Werner Dahm, ED01; Thomas Fox, ED12; Charles Houston, AI01; Uwe Hueter, PS03; Carlo Key, EH01; John Key, SA48; Charles Lovell, CN71; Judy Martin, CM21; Alexander McCool, SA01; Walter McIntosh, EB22; Ann McNair, EO01; Robert Parks, PA01; Lurie Pemberton, LA02; Richard Peters, EB22; Paul Ramsey, ED34; Jack Ray, AI41; Kenneth Reed Jr., EJ32; Axel Roth, PA01; Wendell Rylant, EP52; Robert Schwinghamer, DA01; Harold Scofield, ED11; Jerry Smelser, SA31; Bobby Steele, CN23; Agnes Thomas, SA24; Otha Vaughan Jr., ES44; Edwin Weaver, EH35; August Weisler, Jr., ED12; William White, EB22; Fred Wojtalik, TA01; and Ray Woods, GP40.

NASA photo by Dennis Keim

Share memories of von Braun

Marshall's first director, the late Dr. Wernher von Braun, was recently inducted into the Alabama Men's Hall of Fame. At the ceremony are, from left, Dr. Ernst Stuhlinger, Dr. William Lucas and State Rep. Howard Sanderford. Stuhlinger and Lucas are retired from the Marshall Center and were long-time associates and friends of von Braun. Sanderford was instrumental in nominating von Braun for the honor.

NASA photo by Adeline Byford

CFC kickoff Monday at Center

Combined Federal Campaign (CFC) chairperson Cathy Nichelson, right, chats with Langley engineer Terry Morris, left, and Nanine Bilski after the CFC kickoff in Morris Auditorium Monday. Morris and Bilski were featured speakers during the event.

CAMEX *Continued from page 1*

Experiment, or CAMEX-3, a study of Atlantic-based hurricanes.

The study by NASA, NOAA and several universities, was based at Patrick Air Force Base, Fla., until Hurricane Georges forced a change of base operations to Georgia.

The study, from Aug. 6 to Sept. 23, included a modified DC-8 aircraft in the study of Hurricanes Danielle, Bonnie and Earl. The ER-2 flights were extended to study Hurricane Georges.

On Sept. 27, Jim Barrilleaux, the ER-2 pilot, flew a triangular pattern from near Fort Walton Beach, Fla., due west to Slidell, La., and then southeast to the forecast position of the eye. This triangular pattern was flown twice, before the pilot broke off to fly under the Tropical Rainfall Measurement Mission satellite. He then returned to the triangular pattern for one more pass around. The pilot observed a solid cirrus cloud shield during the triangular maneuver. He did not see any cloud feature resembling an eye until he approached the track of the Tropical Rainfall Measurement Mission satellite. At that point, Barrilleaux noticed a feature to the south of his track with bubbling cloud formations. His aircraft altitude during most of the mission was 65,000 feet without encountering any turbulence.

On Sept. 25, the ER-2 left Warner Robins to study Hurricane Georges as it was moving through Key West, Fla., and along the western coastline of Florida. Dee Porter, the ER-2 pilot, flew east/west legs over the hurricane eye as the storm headed north. Porter noticed the hurricane eye would appear and disappear between eye crossings. He experienced considerable turbulence at 63,000 feet, and reported that the turbulence smoothed out once he increased his altitude to 65,000 feet. Porter described the clouds surrounding the eye as a "bubbling caldron." As comical sidelight, he also found that two pairs of Florida lovebugs accompanied him in the cockpit during the trip.

Results from the hurricane study may increase warning time and ave lives. Results also will be used to validate existing measurements from the Tropical Rainfall Measuring satellite.

Research *Continued from page 1*

to launch aboard Space Shuttle Discovery's STS-95 mission, Oct. 29. Following are some of those investigations, as well as other NASA-sponsored cancer research projects:

Tissue Cell Growth Holds Keys To Better Cancer Treatments (STS-95 mission): Researchers grow live cells in space in rotating cylinders — called bioreactors — for medical research into diseases such as cancer and diabetes or for the growth of new replacement tissues. Bioreactor research at the Marshall Center is concentrating on how breast cancer cells grow and why breast cancer tumors grow and spread. Other bioreactor research has grown kidney cells that produce hormones needed by patients undergoing cancer chemotherapy. Also, researchers are using bioreactors to grow immune cells found in blood, bone marrow and immune systems. Immune cells are responsible for fighting diseases and are often needed by patients undergoing chemotherapy, radiation therapy or diseases of the immune system.

NASA's bioreactor research program is providing new understanding of cancer of the skin, prostate, ovary, breast, bone and colon.

Better Drug Delivery For Fighting Tumors (STS-95 mission): Enclosing a drug in a tiny sphere for better delivery into the human body, a process called microencapsulation, has the potential to provide a number of new medical treatments for cancer by reducing the side effects of chemotherapy. During this Shuttle mission, researchers will work in the near-weightlessness of space to encapsulate two complementary drugs, an anti-tumor drug and an immune stimulant, to create a potent time-released drug for colon cancer.

Multi-layer Microcapsules Help Drug Delivery/Fight Tumors (STS-95 mission): In another microencapsulation experiment aboard the October mission, researchers will form microcapsules, harvest them, and explore the use of electrostatic fields to add coatings to make the microcapsules more effective.

Using these "multi-layered" microcapsules, a chemotherapy treatment may be placed directly into cancerous tumors through one of the tumor's blood vessels. As the microcapsule swells, it may block the blood vessels in and around the tumor so that the chemotherapy treatment remains concentrated in the tumor. The swelling also reduces the blood supply to the tumor, strangling the unwanted tumor growth.

Researchers also want to develop a multi-layer capsule that can carry a dose of anti-tumor drug mixed with a radio-contrast oil. This oil will allow doctors to X-ray and monitor the accumulation of the capsules in the tumor to ensure that all regions of the tumor receive optimum treatment.

Anti-cancer Products From Plant Cells (STS-95 mission): Another area of exploration researchers will study on the October Shuttle mission is the production of anti-cancer drugs grown from plant cells. Derived from soybean cells, these cell cultures have shown promise in commercial labs on Earth.

Key Enzymes/Proteins Offer Leads in Cancer Research (STS-95 mission): Urokinase is a protein identified as a key enzyme in the spread of brain, lung, colon, prostate and breast cancers. New information gathered from this research is helping scientists to better understand the structure of Urokinase and make more effective treatments for cancer by targeting Urokinase.

Human Proteins Lead to Clues About Bone Cancer (STS-95 mission): Aspartame is best known as an artificial sweetener, but researchers have discovered other uses for the substance, including use as a very effective pain reliever for arthritis. On the next Shuttle mission, Aspartame will be used to help stabilize human antibody proteins important in bone cancer research. After it is grown in space as crystals, Aspartame will be analyzed to help researchers develop a treatment for multiple myeloma bone cancer.

Space Research Shines a Light On Tumors to Saves Lives: Special lighting technology developed for NASA's commercial plant growth experiments in space may help treat cancer and save lives on Earth.

A treatment technique called Photodynamic Therapy is using tiny pinhead-size light emitting diodes — developed for NASA Space Shuttle plant growth experiments — to activate light-sensitive, tumor-treating drugs.

Experiments at the Medical College of Wisconsin in Milwaukee, Wis., indicate that when special tumor-fighting drugs are illuminated with light-emitting diodes, tumors are more effectively destroyed than with conventional surgery. Approved by the Food and Drug Administration, light-emitting diodes and light-sensitive drugs are being tested today to treat and remove children's brain tumors.

Researchers Testing Treatment for Skin Cancer: A treatment for a deadly skin cancer is being tested through the joint research efforts of the Marshall Center, the Center for Macromolecular Crystallography of the University of Alabama at Birmingham, and BioCryst Pharmaceuticals Inc., also in Birmingham.

In the past, patients suffering from the cancer known as cutaneous T-cell lymphoma have had no hope of recovery. Once the cancer moved through the skin to the lymph glands, there was no treatment available.

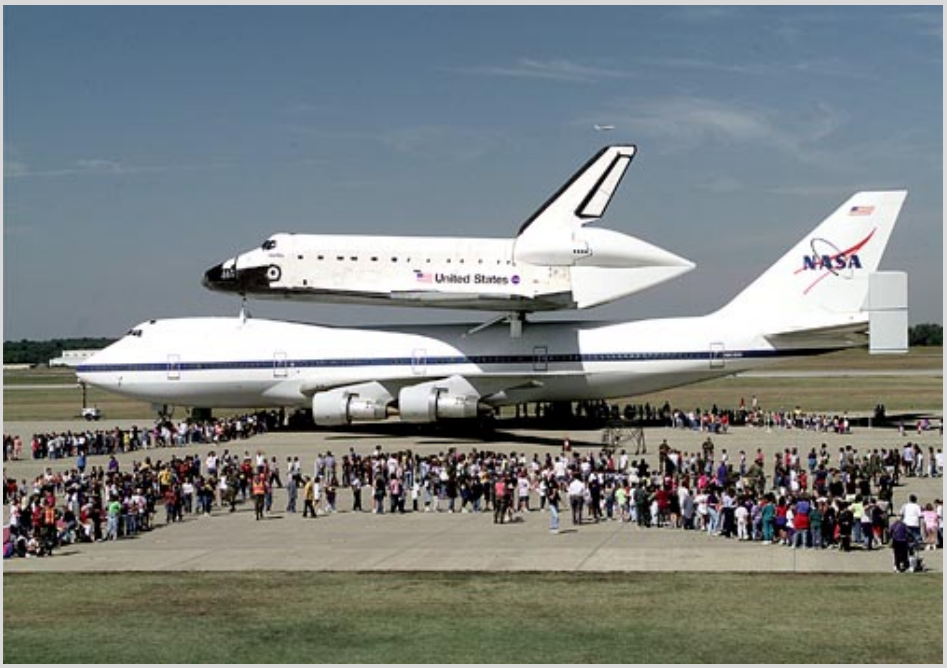
Patients typically would live no longer than three years after diagnosis. The new skin cancer treatment is currently in Food and Drug Administration human clinical trials.

Drugs Made Crystal Clear: The "frequent flyers" of the space program are protein crystal growth experiments. Aboard nearly every Space Shuttle mission, protein crystals are grown by scientists involved in biotechnology research. Pure, precisely ordered protein crystals of large size and uniformity are in high demand by drug developers. Through these large crystals, researchers may be able to unlock the secrets of how to stop a disease. Protein crystals grown on the ground often cannot be grown as large or as ordered as researchers desire, obscuring these vital pathways to cures.

Space research has provided important advances in the understanding of many diseases, including AIDS, heart disease, cancer, diabetes, respiratory syncytial virus, sickle cell anemia, hepatitis and rheumatoid arthritis.

Space Shuttle visits Fort Campbell, Ky.

More than 15,000 students, teachers and parents viewed the Space Shuttle Atlantis up close and personal Sept. 26 when the Shuttle stopped at Fort Campbell, Ky., en route from Palmdale, Calif., to Kennedy Space Center, Fla. Members of the NASA team moving the Shuttle between California and Florida were on hand to answer questions. The Space Shuttle Atlantis — a veteran of 20 flights in space — was in Palmdale undergoing months of extensive refurbishment. It returned to Kennedy Space Center Sept. 27 where it rejoined NASA's Space Shuttle fleet — Columbia, Discovery and Endeavour. Fort Campbell was one of several way points designated by NASA as a stopover location when moving Space Shuttle orbiters between the West and East coasts. Atlantis's visit marked the first time for Fort Campbell to host a Space Shuttle. The orbiter Atlantis' next flight is scheduled for June 1999.



Courtesy photo

Marshall Center employees earn Silver Snoopy Awards

Astronauts Paul Lockhart and Steve Frick presented Silver Snoopy Awards to Marshall Center employees Oct. 1.

The Silver Snoopy Award is presented to employees in appreciation for their "professionalism, dedication and outstanding support that greatly enhanced flight safety and mission success while supporting the Space Shuttle, Space Transportation Program."

NASA photos by Jack Ray

Lockhart, left, and Frick, right, present the Silver Snoopy Award to Carmelo Bianca, ED21.

Lockhart, (second from left) and Frick with award recipients David Martin, SA41, and Barbara Allfrey, SA21.

This is National Fire Prevention Week

The Marshall Center is joining the National Fire Protection Association in observing National Fire Prevention Week, Oct. 4-10. Fire prevention exhibits will be on display today in the lobby of Bldg. 4203 and Thursday during lunch in the cafeteria lobby of Bldg. 4610. Fire extinguisher training sessions are scheduled at various locations around the Center and fire drills will be conducted at unannounced times.

October is National Disability Awareness Month

Employee Ads

Miscellaneous

★ Two tickets to Auburn vs. Arkansas football game, Oct. 31, $50. 880-7376
★ Auburn football tickets, Louisiana Tech., 10/24; Central Florida homecoming, 11/7, 2 at $25 each. 722-9114
★ DP workout system, includes lat bar, butterfly press and leg curl, $375. 882-1586
★ Bike, Road Trek 1400, 56 centimeter frame, Shimano 105 components, $300. 232-1940
★ Entertainment center, custom made for 27" TV, oak, $350. 837-1275
★ Boat, 15' Crosby, 18HP Johnson, trailer, trolling motor, $950; trailer, steel, utility, approx. 8'X5'X1', $150. 881-0278
★ Electric hand drill, 1/4", $10; fertilizer spreader, $5; men's three-suiter luggage, $15; 3-spd. bicycle, $75. 881-864
★ Four handmade afghans, $60 each. 852-5314
★ LeCreuset saucepans, 3/4 quart, $20; 2 quart, $30; 9" skillet, $25. 852-5314
★ 1988 Dynatrak fish and ski boat, 17.5', $4,200. 784-9099
★ GE 24.7 ft. refrigerator, top freezer, ice through door, almond, warranty, $575. 881-6040
★ Sofa, beige crushed-velvet fabric, $35; two matching chairs, earth tones, crushed-velvet, $25. 881-1249
★ Motorized treadmill, variable speed, $100 obo. 837-2122
★ Persian kittens: one male, blue; and two females, blue and blue point. 498-0629
★ Gray two-passenger bench seat from 1995 Plymouth Voyager, $75. 461-7833

Vehicles

★ Two 1987 Fiero GTs, low miles, one automatic, one 5-spd. 882-1566
★ 1995 Maxima , GLE, A/T, leather, Bose system, sunroof, spoiler, CD, $13,900. 350-4588
★ 1995 Nissan, Maxima SE, heated leather seats, automatic temperature control, security, sunroof, ABS, $15,500
★ 1989 Toyota Corolla, 4 dr., white, 1.6L, 159K miles, AT/PS/PB/A/C, AM/FM cassette, $1,350 obo. 883-4744
★ 1985 Plymouth Reliant SC, $600. 890-0297
★ 1991 Chevrolet Astro, 135K miles, dual A/C, seats 7-8, $2,750 obo. 464-0660
★ 1988 Ford Ranger, black w/gold stripe, sport wheels, 5-spd., 94K miles, $2,500 obo. 430-0145

Found

★ Bicycle at East Test Area guard shack; money at 4200 Complex. Call 544-4758 to identify.

Wanted

★ 4 tickets to Auburn vs. Arkansas football game, Oct. 31. 729-8397

Center Announcements

☛ ***MARS Fishing Club —*** The next MARS Fishing Club tournament — the "Classic" — is set for Oct. 10. Two tournaments, "Live Bait" and "Sauger," are scheduled for November and December, respectively. **Contact:** John Pea at 4-8437, Don McQueen at 4-9073 or Charlie Nola at 4-6367

☛ ***MARS Ballroom Dance Club —*** Tickets are available for the MARS Ballroom Dance Club's Formal Dinner Dance on Saturday, Oct. 17 at the Von Braun Center West Hall. **Contact:** Tamara Landers at 544-6818, Pat Sage at 544-5427, Ed Ogozalek at 837-1486, Linda Kinney at 544-0563 or Bob Williams at 544-3998. Reservations for a table of eight may be made by calling Woody Bombara at 650-0200.

☛ ***AIAA —*** The American Institute of Aeronautics and Astronautics' 1998 Defense and Space Programs Conference is scheduled Oct. 28-30 at the Von Braun Center. Admission is paid for all Marshall civil service employees with NASA/MSFC badges required for admittance. A complete technical program may be found on the October calendar of the AIAA home page at: http://www/aiaa.org/

☛ ***Full Cost Training —*** Full Cost training for Marshall employees will be held from 8 a.m.-4:30 p.m. Oct. 22 and Nov. 12 at the Sparkman Center, Martin Road, in Bldg. 5304, room 4331/33; and Nov. 18 at the Sparkman Center in Bldg. 5304, Room 4347/49. Employees may register for the eight-hour training via ADMINSTAR. Contact: Stephanie Elliott, 544-7553, Janie McCrary, 544-7552, Lisa Martin, 544-4374

☛ ***World Travelers —*** Included in the approval process for Marshall employees planning on traveling outside the United States, is a medical evaluation/approval. An appointment — made at Marshall's Medical Center at least two weeks prior to the trip — will ensure the medical approval process is accomplished. Travel orders must be presented by the applicant for sign-off by the Medical Center. **Contact** the Medical Center at 544-2390 to schedule.

☛ ***Skylab Reunion —*** The 25th Annual Skylab Reunion will be held from 6-10 p.m. Nov. 13 at Johnson Space Center, Houston, Texas. Ticket cost is $17 per person and checks may be made payable and sent to: Skylab Reunion, NASA/Johnson Space Center, Bldg. 1, Houson, TX 77058-3696. Include name for identification tags and adddress and telephone number. The deadline for purchasing tickets is Oct. 31. For more information, call (281) 244-1998 or e-mail to: skylab.reunion@jsc.nasa.gov

☛ ***Surplus Auction —*** A local Defense Reutilization & Marketng Office sealed bid sale of property will be held Oct. 19 at 7405 Warehouse Road, Redstone Arsenal. Property may be inspected and bids submitted 8 a.m.-3 p.m. Oct. 14, 15 and 16. To review material for auction and to submit bids, stop by Bldg. 7420, White Oak Road. **Contact:** Donna Davis at 842-2570 or Elizabeth Couch at 842-9474

☛ ***Alabama A&M University Lecture —*** Alabama A&M University will host the first Putcha Venkateswarla Memorial Lecture at 3 p.m. Fri., Oct. 23, in Dawson Auditoriam. A reception will be held at 5 p.m. in the West Campus Reception Area. Dr. Robert Curl of Rice University and recipient of the 1996 Nobel Prize in Chemistry, will speak on "The Adventure of Science." **Contact:** Prof. Ravi Lal at 858-8148 or Jerome Saintjones at 858-4863

☛ ***Toastmasters —*** The NASA Lunar Nooners Toastmasters Club will meet at 11:30 a.m. Tuesday, Oct. 13, in the Bldg. 4610 cafeteria conference room. All Marshall employees, contractors and friends are invited. **Contact:** Lee Johns, 544-5142

High School Senior/NASA Day — Volunteers are needed to share information about Marshall activities with high school students attending the annual high school senior/NASA Day football game between Alabama A&M and Alcorn State on Nov. 14. **Contact:** Efrem Hanson at 544-6340

Job Opportunity

CPP 99-2-JB, Supervisory Contract Specialist, GS-1102-15, Procurement Office (multiple vacancies possible). Closes Oct. 8.

MARSHALL STAR

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Director of Internal Relations
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Managing Editor — Angela D. Storey
Writer-Editor — Ann Marie Bryk

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